An Application to Integrate the Logistical and Technical Aspects of Data Dictionary Support to Multiple Healthcare Systems

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The 3M HDD is designed to support the integration of coded data from different systems into a clinical data repository (CDR). Whenever possible, reference terminologies and standardized coding schemes are used to provide the vocabulary concepts in the HDD. Data enters the CDR through incoming transactions such as HL7 messages, or via data entry programs such as a clinical workstation. Because most clinical systems in operational use already contain proprietary codes, a process of mapping from the legacy data to the standardized terminologies in the HDD is required in order for the CDR to contain “normalized” or “standardized” data. Incoming legacy codes that are not mapped (found) in the HDD will cause the transaction to error off, resulting in incomplete or incorrect information in the CDR.

Because all additions and changes from the legacy systems must be reflected in the HDD, timely support for mapping requests from customers is critical. The workflow management design has been discussed previously. The steps in the process have been clearly understood and applied. Tools, documentation and training have also been provided to make it convenient and easy for the customer to follow the support process and provide the necessary information for mapping. However, as the number of systems mapped to the HDD grows and thus the number of mapping requests increases, the biggest stress on the support process has been the logistical tracking for the 3M HDD group – the audit trail of request received, assigned, and completed, and all the required communication with the customer. In addition to the 14 health care organizations in which the HDD is used, mapping has proceeded for the Department of Defense (DoD). This project has a large number of specific tracking and reporting requirements, both for project management and mapping content, that pose an exponential increase in the logistical “bookkeeping” required. The task is compounded by multiple requesters per system (sometimes sending conflicting requests) and the need to balance the workload and expertise of the HDD group members. To date, 31 DoD facilities have been mapped (with five “systems” each), and work is proceeding on another 16.

The solution reached is to self-develop an application that automates as much of the tracking and reporting requirements as possible, in addition to links to HDD content editors. The application is written in visual basic. It provides a user-friendly browsing and editing interface to the HDD and a Microsoft Access database that contains customer request and HDD version information. It integrates data from these sources in a manner that facilitates workflow, by making lookup more efficient and flexible and diminishing the need for redundant data entry. The new application takes the place of six applications that were previously required to perform the same tasks. The net result is decrease in turnaround time and an increase in the completeness and accuracy of data collected for quality control purposes. The features are:

- HDD browsing and editing
  - Custom SQL queries against the HDD based on user input in 8 fields (pick list, checkbox, and text)
  - Direct entry of SQL queries and an SQL Favorites list that stores commonly used queries
  - Editing of HDD content with constraints and error checking
- Support and Quality Assurance
  - Customer information lookup: Enterprise specific display and interface code contexts
  - Workload information lookup
  - Customer request assignments and status: dates, file names, HDD version, comments
  - Customization metrics table: concept mapping statistics for site customization
- HDD Version Log
  - HDD Update Version content
  - HDD Update Version status: open, closed
- Employee Time Sheet

Our “lesson learned” was necessitated by growing workload. It is shared in the hopes that others can benefit by keeping in consideration the seemingly trivial tasks of logistics tracking, in order to plan for scalable and supportable growth.

Reference

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